

In October 1941, 17 nymphs of this species were collected in and around Washington, D. C. These nymphs were used to establish a thriving culture on plants of crimson clover, *Trifolium incarnatum* L. The plants were grown under celluloid cages in a greenhouse. The temperature was maintained between 20° and 30° C., except for short periods of unusual fluctuation. Extra illumination was provided on dull days and during the short days of winter. It was soon observed that all adults in the culture were females. Although the culture was maintained for more than 2 years, no males were observed.

To determine whether the species is parthenogenetic, an experiment was carried out in which 30 nymphs 24 hours old or less were separately caged on crimson clover. Each insect was transferred to a fresh clover seedling about every 4 weeks, but each was always maintained isolated from other individuals of the species. One nymph died between the second and third transfers. About half of the remaining insects became adult within 120 days and all but one within 133 days. This one insect eventually reached the adult stage. Each of the 29 insects was female, and each deposited eggs in clover and produced nymphs without contact with other individuals of the species. Two had produced nymphs within 130 days of their own hatching from the egg, but the last one to produce nymphs did not do so until 163 days after it hatched.

This experiment would seem to indicate that in the eastern United States *Agallia quadripunctata* normally reproduces parthenogenetically.

THREE SPECIES OF FLIES PREDACEOUS ON MOSQUITO LARVAE¹

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While making collections of mosquito larvae on Guam, M. I., two species of flies, one an Ephydriidae, *Ochthera canescens* Cress., and the other a Dolichopodidae, *Paraclius germanus* Parent, were observed to capture and feed on larvae of *Culex annulirostris* Skuse, *C. quinquefasciatus* Say, and blood-

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worms (Chironomidae). Also, on Guadalcanal, S. I., a species of Ephydriidae, *Ochthera brevititiosis* Meijere was noted to feed on anopheline larvae and bloodworms. These flies were sufficiently numerous around isolated pools that they undoubtedly caused a local reduction of the mosquito population. They were not found to be abundant over a large area, therefore no appreciable general reduction of mosquitoes could be attributed to them.

The Ephydriidae have large prehensible prothoracic legs. The front femur is greatly enlarged and the tibia is modified to form a hook-like clasper that fits tightly against the large femur. Along the surfaces where the femur and the tibia come in contact there are many spines of various sizes. One of the most noticeable habits of these flies is the constant flexing of the prothoracic legs as the flies sit or walk. When disturbed, they stand high on their mesothoracic legs and with the metathoracic legs flexed, they sit with the head high and with the tip of the abdomen near the ground. Flight is rapid and usually close to the surface of the ground or water.

The flies feed upon *Culex* larvae while these are in shallow water. A common feeding method also is for the flies to skim the surface of the water rapidly and to grasp the larvae when the latter rise for air. The flies have difficulty in capturing *Culex* larvae in deeper water, as the larvae can easily avoid capture by "sounding." The bloodworms are captured at the edge of shallow water where the flies reach them with their prehensible legs. Anopheline larvae are easily captured by the flies while they wait at the edge of, or on debris and vegetation in, the water. Occasionally they were seen to alight on the surface and to catch anopheline larvae that were in the open water. All larvae are grasped with the prehensible legs.

The Dolichopodidae feed on mosquito larvae and bloodworms when these insects are in water sufficiently shallow to be reached with the short mouthparts of the fly. These flies, as do the Ephydriidae, glide over the surface of the water and capture *Culex* larvae as they come up for air.